



What's a KILOWATT?

In this module, students will learn how much energy it takes to produce a kilowatt, what a kilowatt hour is and how many kilowatt hours it takes to power common household appliances.

Best for fourth through sixth grades.

OBJECTIVES

- Learn how read an electric meter
- Understand the difference and relationship between watts, amps and volts
- Calculate the energy usage and operating cost of various appliances
- Investigate how much energy it takes to produce one kilowatt hour of electricity

METHODS

Specific methods used will vary depending on age group and setting and may include:

- **Electric Meter Lab—**
Students can observe electricity consumption in action as they watch the dial spin and learn how to interpret this working electric meter.
- **Watts Up? Electricity Consumption Meter—**
Students learn just how much electricity is consumed by everyday devices when they are plugged into this meter.
- **Pedal Power Bicycle Generator—**
Students become their own power plant when they provide the energy for this bicycle generator to run a variety of electric devices.

CONTENT STANDARDS ADDRESSED

South Dakota

- 4.N.2.1. Students are able to find the products of two-digit factors and quotient of two natural numbers using a one-digit divisor.
- 4.S.1.1. Students are able to interpret data from graphical representations and draw conclusions.
- 5.A.3.2. Students are able to identify information and apply it to a given formula.
- 5.N.2.3. Students are able to multiply and divide decimals by natural numbers (1 – 9).
- 5.S.1.1. Students are able to gather, graph, and interpret data.
- 6.N.2.1. Students are able to add, subtract, multiply, and divide decimals.
- 6.P.3.1. Students are able to identify types of energy transformations.
- 6.N.2.1. Students are able to pose questions that can be explored through scientific investigations.

Minnesota

- 4.1.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
- 5.1.1.4 Solve real-world and mathematical problems requiring addition, subtraction, multiplication and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
- 5.1.3.4 Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data.
- 5.2.1.1 Create and use rules, tables, spreadsheets and graphs to describe patterns of change and solve problems.
- 5.2.3.3 Evaluate expressions and solve equations involving variables when values for the variables are given.
- 6.1.3.4 Solve real-world and mathematical problems requiring arithmetic with decimals, fractions and mixed numbers.